

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 09-067645

(43)Date of publication of application : 11.03.1997

(51)Int.Cl.

C22C 38/00

C22C 38/06

C22C 38/20

C22C 38/38

(21)Application number : 07-245330

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(22)Date of filing : 29.08.1995

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(54) THIN STEEL SHEET EXCELLENT IN STRETCH-FLANGING PROPERTY AFTER SHEARING AND SHEET STOCK USING THE SAME THIN STEEL SHEET

(57)Abstract:

PROBLEM TO BE SOLVED: To produce a high strength thin steel sheet excellent in stretch-flanging properties after shearing and to produce a sheet stock obtd. by subjecting the thin steel sheet to shearing at machining allowance of the sheet thickness or below.

SOLUTION: This thin steel sheet has a chemical compsn. contg., by weight, 0.08 to 0.25% C, 0.8 to 3.0% Mn, $\leq 0.01\%$ S, 0.01 to 0.1% Al, 0.001 to 0.010% N, and the balance Fe with inevitable impurities, having a structure composed of low temp. transformation generated phases or composite phases composed of this phase and ferrite and having ≥ 0.7 yield ratio. Or, it contains the steel components and has a structure composed of low temp. transformation generated phases and ferrite. The ratio of the hardness Hv (S) of the low temp. transformation generated phases to the hardness Hv (α) of the ferritic phases, i.e., Hv (α)/Hv (S) is regulated to 0.3 to 0.6, and the number of the low temp. transformation generated phases having a specified shape is regulated to ≤ 20 pieces per $104\mu\text{m}^2$.